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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,128	01/28/2004	Naohisa Kasako	WILL.0001	2251

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EXAMINER

PATEL, HETUL B

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,128	KASAKO, NAOHISA	
	Examiner	Art Unit	
	Hetul Patel	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 20-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 20 is/are allowed.
- 6) ☒ Claim(s) 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/11/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the communication filed on August 11, 2006. This amendment has been entered and carefully considered. Claims 21 is amended and claims 1-10 and 20-30 are again presented for examination.
2. The rejection of claims 21-30 under 35 USC 112 1st paragraph has been withdrawn.
3. Claims 1-10 and 20 are previously allowed.
4. Claims 21-30 are rejected in view of new grounds of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 recites the limitation "said first transmitted storage area" in line 4 of claim 23. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Iskiyan et al. (USPN: 5,692,155) hereinafter, Iskiyan.

As per claim 21, Iskiyan teaches a data processing system comprising: a first storage system (i.e. 502 in Fig. 5) connected to a host unit (i.e. 501 in Fig. 5); and a second storage system (i.e. 503 in Fig. 5) and a third storage system (i.e. 504 in Fig. 5) each connected to said first storage system, wherein: (1) said first storage system comprises: a first data storage area (i.e. 512, 514 and 516 in Fig. 5) for storing data transmitted from the host unit as a primary volume; a first copy data storage area (i.e. buffer 414 and 416 in Fig. 4 of the 502) for temporarily storing a copy of data (i.e. the record to be written to DASDs) to be stored in said first storage area (e.g. see Col. 10, lines 14-16); and a first control unit (i.e. 3 in Fig. 1) which writes the data transmitted from said host unit into said first data storage area, writes copy data of the data written into said first data storage area into said first copy data storage area, and transmits said copy data present in said first copy data storage area to each of said second and third storage systems; (2) said second storage system comprises: a second data storage area (i.e. 532, 534 and 536 in Fig. 5) for storing a copy of the data present in said first data storage area as a first secondary volume; a second copy data storage area (i.e. buffer 414 and 416 in Fig. 4 of the 503) for temporarily storing said copy data transmitted from said first control unit; and a second control unit (i.e. 6 in Fig. 1) which receives said copy data from said first control unit, writes the copy data into said second copy data storage area, writes a copy of the data present in said first data storage area

into said second data storage area based on said copy data present in said second copy data storage area; and (3) said third storage system comprises: a third data storage area (i.e. 542, 544 and 546 in Fig. 5) for storing a copy of the data present in said first data storage area as a second secondary volume; a third copy data storage area (i.e. buffer 414 and 416 in Fig. 4 of the 504) for temporarily storing said copy data transmitted from said first control unit; and a third control unit which receives said copy data from said first control unit said third copy data storage area, writes a copy of the data present in said first data storage area into said third storage area based on said copy data present in said third copy data storage area, and said first control unit of said first storage system detects ms to whether or not said copy data present in said first copy data storage area has been transmitted to said second and third storage systems, holds said copy data present in said first copy data storage area until the copy data is transmitted to both said second and third storage systems, and deletes said copy data present in said first copy data storage area after the copy data has been transmitted to both said second and third storage systems (e.g. see Col. 10, lines 1-7, 14-16, 41+; and Figs. 1, 4 and 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 22-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iskiyan in view of Hirakawa et al. (USPN: 2004/0267829) hereinafter, Hirakawa.

As per claim 22, Iskiyan teaches the claimed invention as described above and furthermore, Iskiyan teaches each of first, second and third storage systems comprises a plurality of physical storage units (e.g. see Col. 10, lines 41+ and Fig. 5). Iskiyan also teaches that each of said first, second and third control units (i.e. the storage controller, 325 in Fig. 3 and 510, 530 and 540 in Fig. 5) comprises the host adaptor (i.e. the port adaptor 412 using the upper port 424 in Fig. 4) for exchanging data with the host device (i.e. 310 in Fig. 3), the disk adaptor (i.e. in the port adaptor 412 using the lower port 426 Fig. 4) for exchanging data with said plurality of physical storage units (i.e. DASD, 375 in Fig. 3), and the cache memory (i.e. 420 in Fig. 4) for storing the data received by said host adapter and the data received by said disk adapter (e.g. see Col. 10, lines 1-7, 14-16, 41+; and Figs. 1 and 3-5).

However, Iskiyan does not clearly teach about allocating the storage areas held by said plurality of physical storage units in said first, second and third storage system to said first, second and third data storage area and said first, second and third copy data storage area. Hirakawa, on the other hand, teaches that said first control unit allocates the storage areas held by said plurality of physical storage units in said first storage system to said first data storage area (i.e. the original logical volume) and said first copy data storage area (i.e. the journal logical volume) (e.g. see claims 15-16 and Fig. 11). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the teaching of Hirakawa into each

of said first, second and third control units taught by Iskiyan. In doing so, the data and the copy data can be stored separately.

As per claims 23-28 and 30, the combination of Iskiyan and Hirakawa teaches the claimed invention as described above. It would have been obvious to one of ordinary skill in the art at the time of the current invention was made to control the time interval of the copy data according to (i) the number of copy data that has been transmitted from the first transmitted storage area; (ii) the communication quantity of data exchanged between said first storage system and said third storage system; (iii) the storage capacity of said copy data held in said third data storage area; and (iv) the processing load of said third storage system, in order to avoid the possible data corruption and/or loss due to transmitting data over the limit/capacity.

As per claim 29, the combination of Iskiyan teaches the claimed invention as described above, but does not teach about having a plurality of logical volumes. Hirakawa, however, teaches that the first data storage area in said first storage system has a plurality of logical volumes (e.g. 230 in Fig. 2); said first control unit writes into said first copy data storage area a plurality of copy data (i.e. the journals) each corresponding to a plurality of data stored in said plurality of logical volumes; information relating to an update sequence of said plurality of data, each corresponding to said plurality of copy data, is contained in said plurality of copy data stored in said first copy data storage area; and each of the second and third control units of said second and third storage systems produces copies of said plurality of data based on said plurality of copy data according to said update sequence contained in said plurality

of copy data read out from said first storage system and writes those copies in respective said second and third data storage areas (e.g. see the abstract and Figs. 1-2 and 4). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the teaching of Hirakawa into the data processing system taught by Iskiyan. In doing so, the backup/second copy data can be updated efficiently and faster by writing the data into the backup/secondary storage system based on the update sequence contained in the journal data. Therefore, it is advantageous.

Allowable Subject Matter

8. Claims 1-10 and 20 are allowed for the same reasons as stated in the office action mailed out on 01/12/2006.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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